

The Work of a Public Health Engineer

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The position of public health engineer is a continuation and expansion of that of the sanitary engineer who has mainly been concerned with water supply and liquid waste disposal problems. In addition to these, the public health engineer is concerned with any factor of the environment which affects the health of the individual or the family. His interests have expanded to include milk and food control; solid waste collection and disposal (garbage and refuse); insect and rodent control; elimination of nuisances; swimming pool, camp, and resort sanitation; school sanitation; industrial hygiene; air pollution; and housing and city planning. Each year brings new discoveries and challenges in this already wide field. The job of the public health engineer is one of the most varied and interesting in the public health field. Not only can he apply his engineering knowledge in solving public health problems in his field, but he also has an opportunity to exercise his abilities as an administrator and executive.

Most public health engineers serve with city or county health departments or as regional engineers in State health departments. In a city or county health department, the engineer usually heads the

sanitation program and may have working with him a number of sanitarians who are responsible to him. His job is to study local health problems and persuade the board of health, the general public, and local officials that something should be done, that something can be done, and that he can do it. With their support he can make up a plan to solve the problem at hand, put the plan into operation, and supervise it to make sure the results are satisfactory. When everything is running smoothly, the routine details can be turned over to the operating personnel and other problems can be considered.

Milk control is based upon legal ordinances which are enforced by the health departments. Such a program is based on the education of the farmers and plant personnel in sanitary handling and proper processing of milk. Therefore the engineer should know the details of this industry in order to deal fairly with its problems.

The food handling industry has different processing methods and more varied equipment than does the milk industry, and offers many challenges to design and management. Seeing that food handling establishments have satisfactory equipment is not enough; the hardest job of the public health engineer is to see that proper operational pro-

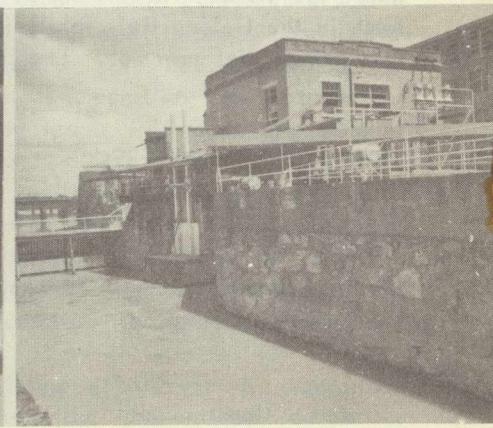
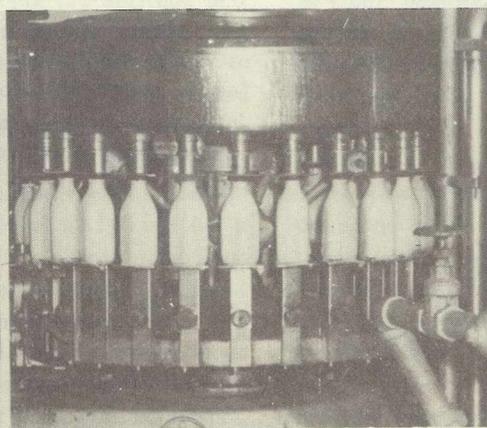
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THE EXPANDING FIELDS OF PUBLIC

WATER SUPPLY

MILK SANITATION

INDUSTRIAL WASTE DISPOSAL



cedures are instituted and carried out.

Insect and rodent control takes the engineer into the fields of biology and entomology where, again, he can use the engineering approach to organize the work of men and the use of materials to accomplish control at the lowest possible cost. The engineer should be constantly on the alert to take advantage of knowledge concerning new insecticides, rodenticides, and equipment in order to make programs more effective or to lower costs.

The method of garbage and refuse collection and disposal has a direct bearing on the insect and rodent populations. Usually the public health engineer is not responsible for this program, but he should be an adviser or consultant to the responsible party. Otherwise all of the efforts of the health departments toward insect and rodent control may be of no avail if conditions are such that insects and rodents have ample food and harborage. Basic sanitation is still the most important factor.

The word "nuisances" means just that to the public health engineer. Many times the connection between a nuisance and public health seems remote; but a good system for handling nuisances will do much to create good will toward the health department and to interest the public in the work of the department. Report forms have been worked out which insure prompt action by the sanitarian and also make it easy to make frequent analyses of types of complaints, locations, frequency, and other factors. This information properly used can demonstrate the need for ordinances or preventive programs.

Industrial hygiene is a challenge to the public health engineer. Most of the environmental problems of industry can be solved by using common sense and by good housekeeping, but some require a high degree of technical knowledge regarding dusts, organic solvents, toxic materials of all kinds, and local and general exhaust ventilation. The larger plants may have their own industrial hygiene personnel, but the local health department can be of real help to small industries by offering them a good consultation service in this field.

Bathing places, camps, and resorts bring up special public health problems. The control of bathing places is a special aspect of water supply treatment and also of basic sanitation and safety. Camp and resort conditions vary from the usual water, sewage, garbage, insect control, and food and milk handling situations. Swimming pool operators need special short training courses to help them to operate the pools properly. Short courses might be given to resort operators, and frequent inspection should be given to camps and resorts. Many urban dwellers who go to rural camps are not able to distinguish serious sanitation hazards from rural inconveniences. They may drink from or swim in contaminated waters; they may drink raw milk and eat foods which have not been refrigerated properly; they may be exposed to insect vectors of disease. All of these hazards can be remedied or eliminated by trained and reliable resort operators.

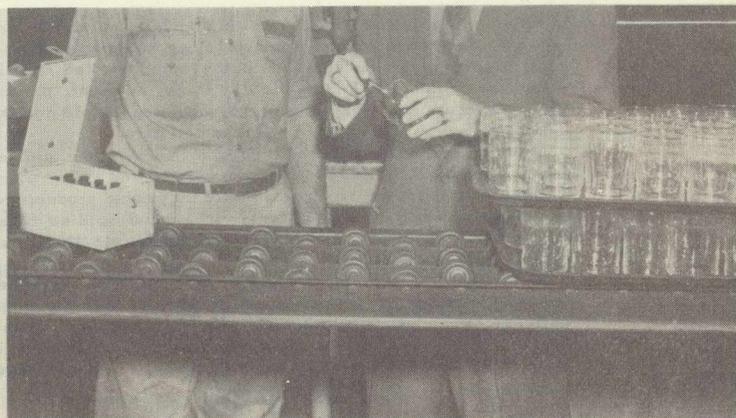
Most large towns have good water and sewage facilities, but the very small towns need frequent

HEALTH ENGINEERING INCLUDE :

HOUSING



RESTAURANT SANITATION



help with operational problems. The fringe areas of large towns also have some very difficult water and sewage problems that the public health engineer may be able to eliminate by assisting in the planning activities. By careful planning, most public health problems can be eliminated before they arise. The engineer should be a member or should sit in on sessions of the community planning commission.

The same situation exists as to housing. Most of the sanitation headaches in urban areas can be eliminated by the removal or rehabilitation of substandard housing. The health departments are interested in providing good physical, mental, and moral environments for the citizens in their areas.

The public health engineer is also concerned with home safety. Through the sanitarians, nurses, and health educators, the health department has direct contact with homes and groups of individuals and therefore has an excellent opportunity to reduce home accidents. Home accidents take as great a toll of human life and suffering as do highway accidents, and most of these home accidents are

preventable. The elimination of physical hazards in the home environment is an engineering design problem.

The pollution of air is somewhat like the pollution of water. Industries and homes pour smoke, dusts, and toxic gases into the atmosphere. Odors also can create disagreeable conditions that may have an indirect bearing on the health and comfort of the individuals exposed. This is of concern to the public health engineer.

Every year we discover some other factors in the environment that affect the health of people. These are of concern to the public health engineer and sometimes are his responsibility.

The area of interest of the public health engineer is broad and varied and is not static. His is one of the most interesting and responsible positions in the field of public service. A good job well done will give the engineer a great deal of personal satisfaction and a feeling that perhaps a small piece of the world and a few of its people are better off as a result of his efforts than they otherwise would be.

Human Behavior Patterns★

R. E. Kious**

"Good morning, Ray," called Cliff Melton cheerfully as he met his friend and health department colleague, Ray Godwin. "How's everything this morning?"

*If there is any originality in this article, it stems from a combination of the work of many other persons. A bibliography is appended, and to the authors cited therein I feel most indebted for the rich heritage; however, it must be made clear that they are in no way responsible for the manner in which their ideas are presented here.

My gratitude is expressed to the many other authors whose articles I have read but did not record.

Deep appreciation is extended to the many students of the Topeka Field Training Center who have applied these and other principles of behavior to corroborate their own results and those of the authors.

My apologies and appreciation are likewise extended to the countless people from all walks of life for their patience in answering what, in their opinion, at least, seemed stupid questions. Also to those whom I used in experiment without consent and who, I hope, have forgiven me, I extend appreciation.

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"Good morning, Cliff. Everthing's fine, thanks," Ray replied.

The two friends and co-workers walked on down the street toward the health department which was a few blocks away.

"Cliff, I wanted to ask you about that new deter...."

"Good morning, Mr. Harrison," called Cliff. "How's the little girl coming along?"

"Oh, she's doin' jus' fine, Mistah Cliff, jus' fine."

"Who's that?" asked Ray.

"That's Mr. Harrison, janitor at the Central Building. His little girl sprained her wrist last week and...."

"Hi, Mary," Cliff called before he could finish his explanation.

From across the street Mary answered his